PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT 10/03	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IT 03/00849	International filing date *(day/month/year)* 22.12.2003	Priority date *(day/month/year)* 17.01.2003
International Patent Classification (IPC) or both national classification and IPC B31F1/07		
Applicant PERINI, Fabio		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23.06.2004	15.11.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Fachin, F Telephone No. +49 89 2399-2057

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT 03/00849

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

2-7	as originally filed
1, 1a, 8	filed with telefax on 21.10.2004

Claims, Numbers

1-8, 10	as originally filed
9	filed with telefax on 21.10.2004

Drawings, Sheets

1/12-12/12	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-10
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations

   see separate sheet

SECTION V : CITATIONS AND EXPLANATIONS

1. The invention relates to an apparatus (claim 1) and a method (claim 9) for continually joining paper webs without producing undesired surface deformations and therefore improving the quality.
The posed problem is solved by providing the apparatus with **a roller (2) exhibiting a hard outer surface supported by an underlying elastic surface.**

2. Since every one of the documents cited in the search report fails in disclosing **at least** the above-mentioned features, independent claims 1 and 9 as well as their dependent claims are considered to fulfil the criterion set forth in Article 33(2) PCT (novelty).

3. Furthermore the invention, as disclosed in independents claims 1 and 9, is considered not to be obvious to a person skilled in the art.
Document US 6,053,232 (D1), which is considered to represent the closest prior art, describes an apparatus with two embossing cylinders forming a nip. One embossing cylinder interacts with a pressure roller which may be covered with a yielding material. No hints are contained in D1 for providing a cylinder with a hard surface supported by an underlying elastic surface.
The other documents cited in the Search Report define simply the general state of the art, do not add anything to the disclosure of D1 and therefore are not considered to be of particular relevance.

   Consequently independent claims 1 and 9, which include the above mentioned features solving the posed problem, as well their dependent claims are considered to fulfil the criterion set forth in Article 33(3) PCT (inventive step).

4. Finally, since it appears that the claimed invention can be made or used in a technological sense in industry, it is considered to show industrial applicability within the meaning of Article 33(4) PCT.

SECTION VII: DEFECTS IN THE INTERNATIONAL APPLICATION

6. The requirements of Rule 6.3(b) PCT are not met because claim 9 is not **properly** draft in the two-part form, whereby the features known in combination from D1 are placed in the preamble.

PCT 10/03

TITLE

"APPARATUS AND METHOD FOR CARRYING OUT A CONTINUED UNION OF PAPER WEBS"

SPECIFICATION

The present invention refers to an apparatus and a method for continually joining paper webs.

<1>

An apparatus usually employed for a continuous union of paper webs comprises, with reference to the outline of Fig. 1, two pairs of rollers and cylinders (A, B; C, D) for embossing paper webs (E, F), a roller (G) for distributing a given amount of glue onto the paper which transits in correspondence of one of the embossing rollers, and an impression roller with rubber-coated surface (H) positioned diametrically opposite to the gluing roller (G): the paper webs (E, F) result embossed as they transit between the surfaces of the corresponding embossing rollers and cylinders, that is, as they pass through the regions indicated by "X" and "Y" in Fig. 1, and become definitively glued by their passing onto the embossing roller (B) and because of the pressure exerted thereon by the rubber-coated roller (H). In Fig. 1, the arrows (VE, VF, VA) indicate the directions of advancement of web (E), web (F) and of the exiting coupled webs (AC).

One drawback relating to this operating technique lies in the fact that, because of the very compliance of the material that sheathes the output pressure roller (H), and of the pressure that this roller exerts on the first embossing cylinder (B), the material of the pressure roller penetrates the surface cavities of the cylinder. As a consequence, a mutual squashing of the two paper webs occurs throughout the space within which the coating material of the pressure roller fits into the cavities of the embossing cylinder (as

AMENDMENT TO THE DESCRIPTION

1> At page 1, line 7 insert:
"Apparatus for carrying out a continued union of paper web are known from DE-A-100 43 989 and from US 2001/019757. These documents described apparatus for carrying out the union of two paper webs by a mutual compression of the concerned webs, in which the webs are compressed between a pressure roller and an impression roller provided with surface reliefs and/or depressions".
(see copy of the page enclosed)

2> At page 8, delete from line 11 to line 16.
(see copy of the page enclosed)

BEST AVAILABLE COPY

In view of the union of the two paper webs (5, 6) which, as previously set forth, may be multiple webs, an operating method according to the present invention includes compressing the paper webs between a pressure roller or cylinder (2) and an impression roller or cylinder (4), the said impression cylinder being provided with surface reliefs and/or depressions, and the outer surface of said pressure cylinder being a hard surface.

According to the method of the present invention, the said cylinder (4) may also be an embossing cylinder.

The construction details may vary in any equivalent way as far as the shape, dimensions, elements disposition, nature of the used materials are concerned, without nevertheless departing from the scope of the adopted solution idea and, thereby, remaining within the limits of the protection granted to the present patent.

NEW CLAIM 9

9) Method for carrying out the union of two paper webs (5, 6) by a mutual compression of the concerned webs, characterized in that it includes compressing the said webs between a pressure roller or cylinder (2), provided with a hard outer surface and an underlying elastic surface (23), and an impression roller or cylinder (4) provided with surface reliefs and/or depressions.